Amendments to the Claims

Listing of claims:

1. (Currently Amended) A method for the analysis of a target sequence in a sample, said method comprising:

a. contacting the sample with at least one pair of probes (Probe A and Probe B), wherein:

i) Probe A ~~is comprised of~~ comprises a nucleotide sequence, which hybridizes to a target region of both wanted and unwanted DNA or RNA and is labeled with a ~~first~~ fluorophore ~~at the end which, upon hybridization is closest to Probe B~~; and

ii) Probe B ~~is comprised of~~ comprises a nucleotide sequence which hybridizes to the target region of unwanted DNA or RNA adjacent to the target region of Probe A and is labeled with a quencher ~~at the end which, upon hybridization is closest to Probe A~~.

b. detecting, identifying or quantitating the hybridization of Probe A to the target sequence, under suitable hybridization conditions, wherein the fluorescence generated from the hybridization of Probe A to unwanted DNA or RNA is quenched by hybridization of Probe B, and wherein the presence or amount of wanted DNA or RNA present in the sample can be positively correlated with the fluorescence of the fluorophore of Probe A.

2. (Original) The method of claim 2, where the method is performed by fluorescence in situ hybridization.

3. (Original) The method of claim 1, wherein Probe A and Probe B are high affinity probes.

4. (Previously Presented) The method of claim 1, wherein Probe A and Probe B are peptide nucleic acid (PNA) probes.

5. (Original) The method of claim 1, wherein one of more of the probes has a probing nucleobase sequence of 11-16 subunits in length.

6. (Original) The method of claim 1, wherein Probe A comprises the following nucleotide sequence: GCT-TCT-CGT-CCG-TTC.

7. (Original) The method of claim 1 or 6, wherein Probe B comprises the following nucleotide sequence: ACT-TCA-AAG-GAG-CAA.

8. (Original) The method of claim 1, wherein Probe A consists essentially of the following nucleotide sequence: GCT-TCT-CGT-CCG-TTC and the fluorophore.

9. (Original) The method of claim 1 or 6, wherein Probe B consists essentially of the following nucleotide sequence: ACT-TCA-AAG-GAG-CAA and the quencher.

10. (Original) The method of claim 1, wherein Probe A has the following nucleotide sequence: GCT-TCT-CGT-CCG-TTC.

11. (Original) The method of claim 1, wherein Probe B has the following nucleotide sequence: ACT-TCA-AAG-GAG-CAA.

12. (Original) The method of claim 1 where Probe A is labeled with the fluorophore at the probe terminus closest to the binding site of Probe B, and Probe B is labeled with a quencher at the probe terminus closest to the binding site of Probe A.

13. (Previously Presented) The method of claim 1 or 12 wherein Probes A and B are labeled internally.

14. (Original) The method of claim 1, wherein Probe B is further labeled with a fluorophore at the opposite end and wherein which fluorophore has a different emission spectrum than the fluorophore on Probe A.

15. (Original) The method of claim 1, wherein, upon hybridization, the two PNA probes are separated by a distance of between from about one to about five nucleotide bases.

16. (Original) The method of claim 1, wherein the target sequence is obtained from a cell or tissue.

17. (Original) The method of claim 16, wherein the cell or tissue has been manipulated to preserve the target sequence therein.

18. (Original) The method of claim 17, wherein the manipulation includes fixation, freezing or desiccation.

19. (Original) The method of claim 1, wherein step (b) of the method detects, identifies, or quantitates the presence or amount of at least one species of a microorganism in the sample.

20. (Original) The method of claim 19 wherein the target sequence was isolated from a microorganism exposed to at least one antimicrobial agent and the presence of amount of wanted DNA or RNA is taken to be indicative of an effect of the antimicrobial agent on the microorganism.

21. (Original) The method of claim 1, wherein the detection, identification or quantitation step is indicative of a condition of medical interest.

22 – 38. (Cancelled)

39. (New) The method of claim 1, wherein the hybridization of Probe B increases the specificity for the presence or absence of the wanted DNA or RNA sequence.